产品规格承认书

Product Specification Approval

产品名称（Product Name）：	铁锂 4 串 12V15A 同口带均衡 LiFePO4 4S 12V 15A Common port with Balance	
产品型号（Product Number）：	DL-J04G3-F4S15ATJ	
客 户 名（Customer Name）：		
客户料号（Customer P/N）：		
送样日期 Sample delivery date	**版次 Version**	**文件编号 Document No.**
	A0	
编制(Prepared by)	**核准(Approved)**	**审核(Audit)**
蒋慧明	**梁连虎**	**冯耀辉**
客户确认栏 Customer Confirmation Column		
确认意见 Confirm opinion： **客户签章 Customer signature:** **日期 Date:**		

注意（Notice）：

1.收到样机确认 OK 后请及时回签，7 天内没有回签及问题反馈，我司默认客户测试合格；规格书中的图片为通用机型图片，可能与送样样机有差异，此份规格书达锂电子保留最终解释权
After receiving the prototype confirmation, please sign back in time. If there is no sign back and problem feedback within 7 days, our company defaults that the customer test is qualified; specifications

2.客户批量前，请在规格书中签字回传，并说明详细功能说明，我司才安排批量
Before the customer batches, please sign the specification and return it, and explain the detailed function description, and our company will arrange the batch

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1.简介 Introduction

随着锂电池在锂电行业的广泛应用，对电池管理系统也提出了高性能、高可靠性及高性价比等要求。本产品是专门针对锂电池设计的 BMS，它能够实时采集、处理和存储电池组在使用过程中的信息数据，保证电池组的安全性、可用性和稳定性。

With the wide application of lithium batteries in the lithium battery industry, requirements for high performance, high reliability and high cost performance are also put forward for battery management systems. This product is a BMS specially designed for lithium batteries. It can collect, process and store the information and data of the battery pack in real time during use to ensure the safety, availability and stability of the battery pack.

2.产品概述及特点（Product Overview and Features）：

- 使用专业大电流走线设计及工艺，能经受超大电流冲击

  Using professional high-current trace design and technology, it can withstand the impact of ultra-large current
- 外观采用注塑密封工艺，提升防潮，防元器件氧化程度，延长产品使用寿命

  The appearance adopts the injection molding sealing process to improve moisture resistance, prevent the oxidation of components, and prolong the service life of the product
- 具有防尘、防震、防挤压等防护功能

  dust proof, shockproof, anti-squeezing and other protective functions
- 有完整的过充、过放、过流、短路、均衡功能

  There are complete overcharge, over-discharge, over-current, short circuit, equalization functions
- 采用集成化的设计，将采集、管理、通信等功能集成于一体

  The integrated design integrates acquisition, management, communication and other functions into one

3.电气特性 Electrical characteristics

3.1 基本参数 Basic parameters

序号 No	检测内容 Test content		出厂默认参数 Factory default parameters	单位 Unit	备注 Remark
1	放电 Discharge	额定放电电流 Rated discharge current	15	A	
	充电 Charging	充电电压 Charging voltage	14.6	V	
		额定充电电流 Rated charging current	8	A	0.5C
2	被动均衡功能 Passive equalization function	均衡开启电压 Equalization turn-on voltage	3.525	V	
		均衡开启条件 Equilibrium On Condition	同时满足： Satisfy both: 1.充电情况下 Under charging 2.达到设定平衡开启电压		

			Achieving the set equilibrium turn-on voltage		
		均衡电流 Balance current	30±10	mA	备注 Remark
3	单体过充保护 Single Cell over-charge protection	单体过充保护电压 Single Cell over-charge protection voltage	3.65±0.05	V	
		单体过充保护延时 Single Cell over-charge protection delay	1±0.5	S	
		单体过充保护解除电压 Single Cell over-charge protection release voltage	3.55±0.05	V	
		单体过充保护解除延时 Single Cell over-charge protection release delay	1±0.5	S	
4	单体过放保护 Single Cell over-discharge protection	单体过放保护电压 Single Cell over-discharge protection voltage	2.3±0.05	V	
		单体过放保护延时 Single Cell over-discharge protection delay	1±0.5	S	
		单体过放保护解除电压 Single Cell over-discharge protection release voltage	2.7±0.05	V	
		单体过放保护解除延时 Single Cell over-discharge protection release delay	1±0.5	S	
5	充/放电过流保护 Charge/discharge over-current protection	放电过流保护电流 Discharge over-current protection current	60±10	A	
		放电过流保护延时 Discharge over-current protection delay	1±0.5	S	
		解除条件 Release condition	移除负载解除 Removing the load is lifted		
		充电过流保护电流 Charge over-current protection current	25±3	A	
		充电过流保护延时 Charge over-current protection delay	1±0.5	S	
		解除条件 Release condition	移除充电器解除 Remove the charger to release		
6	短路保护 Short circuit protection	短路保护条件 Short circuit protection conditions	外部负载短路 External load short circuit		
		短路保护延时 Short circuit protection delay	10~500	uS	实际以客户电池寄回我司测试为准 The actual test is subject to the customer's battery sent back to our company for testing.
		短路保护解除 Short circuit protection released	移除负载解除 remove load release		
		充电高温保护温度 Charging high temperature protection temperature	55	℃	

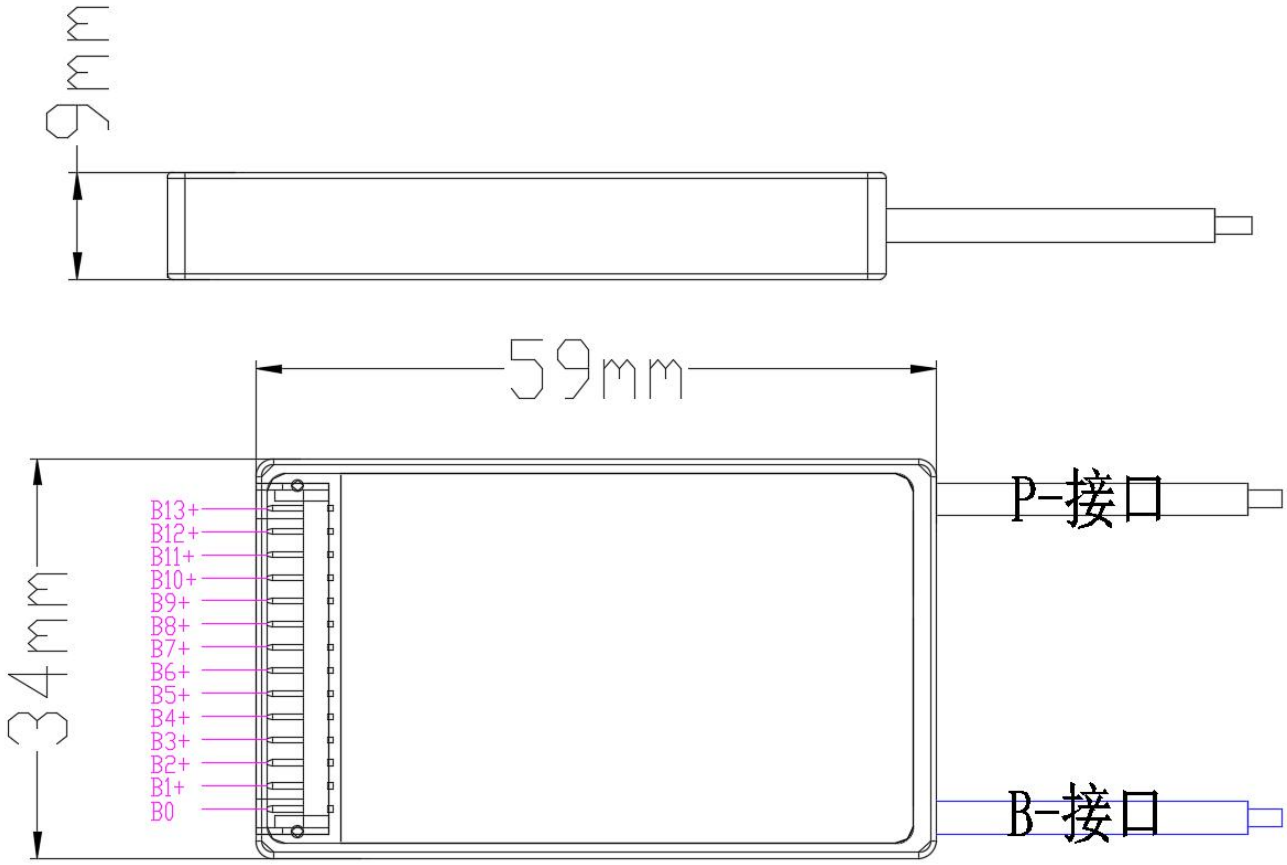
7	温度保护 Temperature protection	充电低温保护温度 Charging low temperature protection temperature	-20	℃	
		放电高温保护温度 Discharge high temperature protection temperature	75	℃	
		放电低温保护温度 Discharge low temperature protection temperature	-40	℃	
		温度保护解除条件 Temperature protection release conditions	达到恢复温度且断开负载 The recovery temperature is reached and the load is disconnected		
8	内阻 Internal impedance	主回路导通内阻 Main circuit on-resistance	<20	mΩ	
9	消耗电流 Current consumption	工作时自耗电电流 Self-consumption current during operation	<500	uA	不包含模块自耗 Not include module self-consumption
		休眠模式自耗电电流 Self-consumption current in sleep mode	0	uA	进入：无通讯、无电流、无钥匙信号 Entry: no communication, no current, no key signal
10	软开关 Control switch	□有 ☑无			
11	保护板尺寸 BMS size	长*宽*高（mm） Long * Width * High (mm) 59*34*9			

3.2 可靠性参数 Reliability parameters

序号 NO	项 目 Project	条 件 Condition
1	检测精度 Detection accuracy	电流检测精度 Current detection accuracy：≤(±3%FSR) 电压检测精度 voltage detection accuracy：≤±15mV 温度检测精度 Temperature detection accuracy：≤2℃（常温下）
2	工作环境条件 Working environment conditions	工作温度:-40℃～85℃ Operating temperature:-40℃~85℃
		相对湿度:5%～90%RH Relative humidity: 5%～90%RH
3	存储环境条件 Storage environment conditions	存储温度:-40℃～85℃ Storage temperature: -40℃~85℃
		相对湿度:5%～75%RH Relative humidity:

4.保护板尺寸图（接口仅供参考，非常规标配，详情请参考 4.1 接口引脚说明）

Dimensional drawing of BMS(interface for reference only, unconventional standard, please refer to 4.1 Interface pin specification)



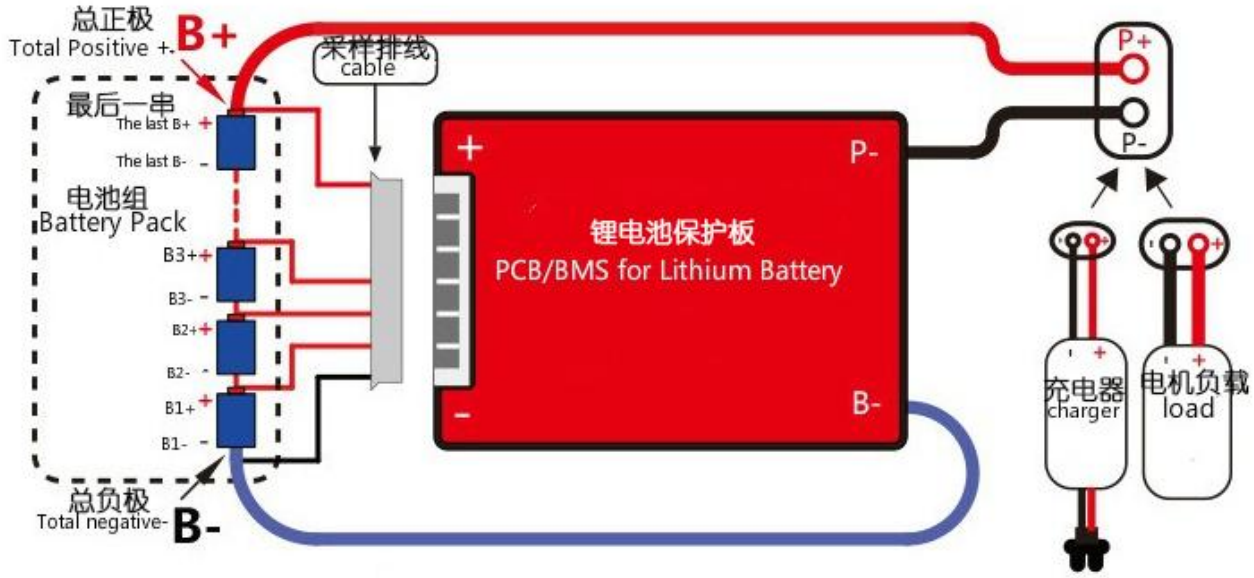
4.1 接口引脚说明 Interface pin instructions

接口名称 Interface name	Pin 脚	标号 Label	定义说明 Definition description
B-接口（标配） B-interface Standard Parts	/	B-	电池总负，接电池总负 Battery negative, connect to battery negative
P-接口（标配） P-interface Standard Parts	/	P-	保护板充放电负极，接充放电负端 The charge and discharge negative terminal of the protection board is connected to the negative terminal of the charge and discharge
采样线接口（标配） Sampling line interface Standard Parts PHB 2.0 5 Pin 带扣	1	B0	接第 1 节电池负级 Connect to the negative terminal of the first battery
	2	B1+	接第 1 节电池正级 Connect to the positive terminal of the first battery
	3	B2+	接第 2 节电池正级 Connect to the positive terminal of the second battery
	...	...	接最后 1 节电池正级 Connect the positive terminal of the last battery

4.2 主要线材说明

线材名称 Line name	默认规格 Default specification
B- P-线 Output Line	3135 16AWG L=100mm
采集线 Collecting line	1007 24AWG L=300mm（5PIN）

5.接线示意图 Wiring diagram



5.1 接线说明 Wiring Instructions

- 先将保护板 B-线（蓝色粗线）到电池组总负极；
  First connect the B-line of the protection board (thick blue line) to the total negative pole of the battery pack
- 排线从细黑线连接 B-开始，第 2 根线连接第 1 串电池正极，后面依次连接每一串电池的正极；再把排线插入保护板；
  The cable starts from the thin black wire connected to B-, the second wire is connected to the positive electrode of the first string of batteries, and the positive electrode of each string of batteries is connected in turn; then insert the cable into the protection board
- 线完成后，测量电池 B+，B-电压与 P+，P-电压值是否相同，相同即保护板工作正常；否则请按照上面重新操作；
  After the line is completed, measure whether the voltages of battery B+ and B- are the same as those of P+ and P-. The same means that the protection board is working normally; otherwise, please re-operate according to the above;
- 拆卸保护板时，先拔排线（如果有两个排线，先拔高压排线，再拔低压排线），再拆动力线 B-.
  When removing the protection board, first unplug the cable (if there are two cables, first pull out the high-voltage cable, then pull out the low-voltage cable), and then disconnect the power cable B-.

6.保修 Warranty

本公司生产的所有锂电池保护板，质保一年；人为因素导致损坏的，有偿维修
All lithium battery BMS produced by our company has a one-year warranty; if the damage caused by human factors, paid maintenance

7.注意事项 Precautions

1. 不同电压平台的保护板不能混用，如三元类保护板不能使用铁锂电池上；

. BMS of different voltage platforms cannot be mixed. For example, NMC BMSs cannot be used on LFP batteries.

2. 不同厂家的排线不通用，请确保使用我们公司配套排线；

The cables of different manufacturers are not universal, please make sure to use our company's matching cables

3. 在测试、安装、接触和使用保护板时，要做好放静电措施；

Take measures to discharge static electricity when testing, installing, touching and using the BMS

4. 不要使保护板的散热面直接接触电芯，否则热量会传送到电芯，影响电池的安全；

Do not let the heat dissipation surface of the BMS directly contact the battery cells, otherwise the heat will be transferred to the battery cells and affect the safety of the battery

5. 不可自行拆卸、更改保护板元器件；

Do not disassemble or change BMS components by yourself

6. 本公司保护板金属散热片进行了阳极氧化绝缘处理，氧化层破坏后仍会导电，组装作业

中避免散热片与电芯、镍带接触；

The company's protective plate metal heat sink has been anodized and insulated. After the oxide layer is damaged, it will still conduct electricity. Avoid contact between the heat sink and the battery core and nickel strip during assembly operations.

7. 如果保护板出现异常，请停止使用，等问题解决了再使用；

If the BMS is abnormal, please stop using it and use it after the problem is solved

.8. 不要让两个保护板串联或并联使用。

All lithium battery protection boards produced by our company are guaranteed for one year; if damaged due to human factors, paid maintenance.

8.特别说明 Special Note

我司产品进行严格的出厂检验测试，但是因为客户使用的环境不同（特别是在高温、超低温、太阳下等），难免会出现保护板故障，所以客户在选择和使用保护板时，需要在友好的环境下使用，及选择一定冗余量的保护板。

Our products undergo strict factory inspection and testing, but due to the different environments used by customers (especially in high temperature, ultra-low temperature, under the sun, etc.), it is inevitable that the protection board will fail. Therefore, when customers choose and use BMS, they need to be in a friendly environment, and select a BMS with a certain redundancy capability.

产品更改说明

Product change Instructions

版本 （Version）	更改内容 （Change content）	更改原因 （Reason for change）	更改日期 （Change date）	备注 （Remarks）

A0				